WE CLAIM:

1. A lithographic projection apparatus, comprising:

a radiation system configured to provide a projection beam of radiation;

a support configured to support a patterning device, the patterning device configured to pattern the projection beam according to a desired pattern;

a substrate table configured to hold a substrate; and

a projection system configured to project the patterned beam onto a target portion of the substrate, wherein the radiation system comprises an illumination system configured to define an intensity distribution of the projection beam, the illumination system comprising a setting device configured to direct different parts of an incoming radiation beam into different directions to provide a desired angular intensity distribution of the projection beam at the patterning device, the setting device comprising a plurality of directing elements, each directing element configured to direct a part of the incoming radiation beam, and an orientation of each directing element is set to direct the part of the incoming radiation beam into a desired direction.

2. An apparatus according to claim 1, wherein the setting device comprises:

a reflector plate configured to support reflectors;

at least one resilient member associated with each reflector and configured to resiliently support each reflector on the reflector plate;

at least one aperture in the reflector plate associated with each reflector; and

a setting plate including at least one pin associated with each reflector, wherein the pins of the setting plate are insertable into the apertures of the reflector plate, each at least one pin engaging its associated reflector to orient the associated reflector by rotation about two axes substantially perpendicular to the optical axis of the associated reflector.

3. An apparatus according to claim 2, wherein the two axes are orthogonal.

4. An apparatus according to claim 1, wherein the illumination system further comprises re-directing elements to re-direct at least a part of the directed beam and to produce a spatial intensity distribution in a cross-section of the directed beam which corresponds to the angular intensity distribution.

5. An apparatus according to claim 4, wherein the cross-section is in a pupil plane.

6. An apparatus according to claim 4, wherein the illumination system further comprises a widening device that widens the range of directions into which the directed beam

propagates.

7. An apparatus according to claim 6, wherein the widening device comprises a diffuser device.

8. An apparatus according to claim 7, wherein the diffuser device is a diffuser plate.

9. An apparatus according to claim 1, wherein the directing elements are arranged side by side to each other in a cross-sectional area of the incoming radiation beam.

10. An apparatus according to claim 1, wherein the illumination system further comprises a concentrating device constructed and arranged to concentrate parts of the incoming radiation beam onto the directing elements.

11. An apparatus according to claim 10, wherein the concentrating device comprises a reflective surface area having one of a parabolic and a hyperbolic three dimensional shape and an array of one of hyperbolic and parabolic reflective surfaces.

12. An apparatus according to claim 1, wherein the setting device comprises a first faceted reflector, each of the directing elements being a facet of the first faceted reflector and configured to project an image of a radiation source onto a selected facet of a second faceted reflector by setting of the orientation of each reflector.

13. An apparatus according to claim 1, wherein the setting device comprises a first faceted reflector, each of the directing elements being an array of facets, each facet configured to project an image of a radiation source onto a facet of a second faceted reflector.

14. An apparatus according to claim 12 or 13, wherein the orientation of each facet of the second faceted reflector is set by a second setting device.

15. An apparatus according to claim 12 or 13, wherein the second faceted reflector has more facets than the first faceted reflector.

16. An apparatus according to claim 12 or 13, wherein the second faceted reflector is located substantially in a conjugate plane of a pupil of the projection system.

17. A device manufacturing method, comprising:

providing a substrate at least partially covered with a radiation-sensitive material;

providing a beam of radiation;

modifying the intensity distribution of the beam;

generating a projection beam of radiation from the beam;

using a patterning device to endow the projection beam with a pattern in its cross-section; and

projecting the patterned beam of radiation onto a target which comprises at least a part

of the radiation-sensitive material, wherein the modification of the intensity distribution of the beam includes setting the direction into which the radiation propagates, wherein the beam comprises a plurality of sub-beams, wherein at least some of the sub-beams are directed into different directions using a plurality of reflectors, and orientations of the reflectors are set to direct the corresponding sub-beam into a desired direction.

18. A method according to claim 17, wherein a predetermined angular intensity distribution of radiation propagation at the patterning device is produced by directing the sub-beams, the directed sub-beams contribute to a predetermined spatial intensity distribution of the beam in its cross-section, and each of the different directions of radiation propagation corresponds to one particular area of the spatial intensity distribution in the cross-section.

19. A method according to claim 18, wherein the one particular area is one specific local point in a focal plane.

20. A method according to claim 18, wherein at least one of the sub-beams is manipulated before it is directed so that the steered sub-beam propagates into a defined range of propagation directions.

21. A method according to claim 18, wherein the directed sub-beams each propagate essentially into a single direction.

22. A method according to claim 20, wherein the defined range of propagation directions of at least one of the steered sub-beams is increased so that the at least one directed sub-beam corresponds to an increased area of the spatial intensity distribution.

23. A device manufactured by the method of claim 17.